USING A VACUUM GAUGE TO CHECK A MILKING MACHINE

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THE VACUUM LEVEL applied to a cow should not fluctuate excessively. A drop in vacuum of more than 2 or 3 inches at the end of the teat during milking can cause teat and udder tissue damage. Such irritations can lead to serious mastitis problems.

The pump must remove more air than is necessary just for milking if a uniform level of vacuum is to be maintained. The air pressure must be reduced sufficiently to remove milk from the udder, to hold the milker unit on the cow, to move the milk to the line or pail, and to overcome unwanted air leaks. Adequate reserves of air and vacuum are also essential for the pulsators to intermittently collapse the teat cup liners.

When the milk must be lifted to a high level or when the air admission hole in the claw is clogged, the vacuum level at the teat can drop severely, even when the pump is working normally.

An accurate milking machine vacuum gauge can be used to measure the vacuum level not only at the end of the cow's teat but also at other strategic locations. About all that's needed is a means of attaching the gauge to the milking system.

You can use the vacuum gauge from your own milker. Simply remove the gauge and plug the hole.

HOW TO MAKE A TESTER

It is easy to obtain the necessary items for adapting the vacuum gauge to use as a milking machine tester. You will need the following items:

1. A galvanized or plastic pipe tee or elbow.
2. A metal or plastic nipple.
3. Two short pieces of rubber hose (pulsator air hoses work fine).

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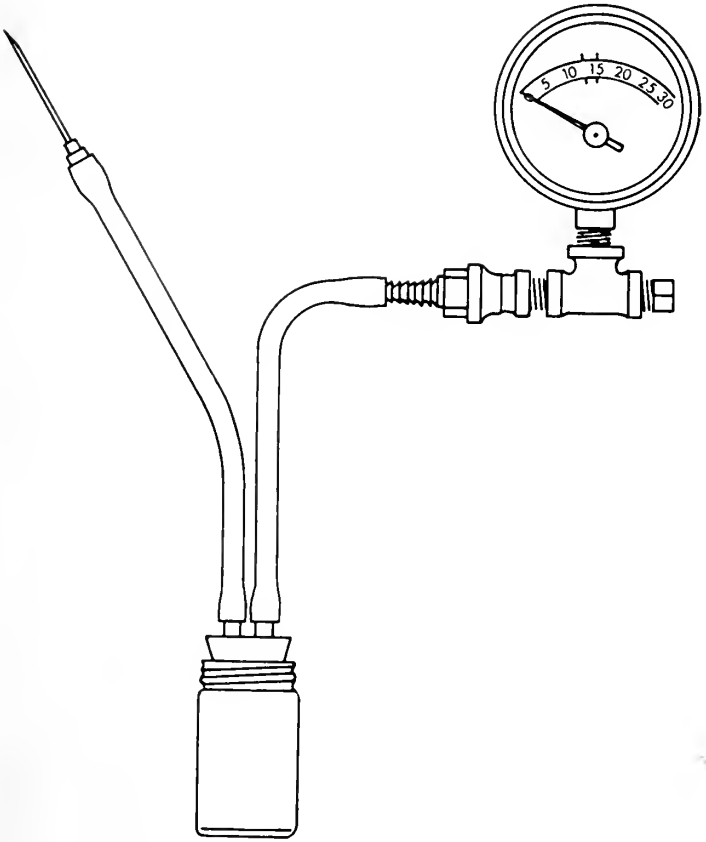
4. A small glass milk sample jar.
5. A rubber stopper to fit jar with two holes in it.
6. Two short pieces of glass or plastic tubing to fit holes in rubber stopper.
7. A medium-size hypodermic needle.

The drawing shows how to assemble the equipment.



TESTING THE VACUUM AT THE TEAT CUP

The most important test to make on any milking machine is the stability of the vacuum level applied at the teat end. Here's how to check vacuum stability at the teat cup:

1. Operate all milker units.
2. On one unit at a time, insert the hypodermic needle into the shank of the teat cup liner just below the metal shell.
3. Attach your gauge to the head of the hypodermic needle. (Make sure the teat cup makes a tight seal at the base of the teat.)
4. Watch the level of recorded vacuum throughout the entire milking of a fast-milking cow.

The vacuum registered on the gauge should not drop more than about 3 inches during milking. A greater drop indicates a potential problem in the system. Inadequate vacuum pump capacity, air leaks in the system, belt slippage, high milk lift to the milk line, and blocked air bleeder holes in the milker claw are some of the possible causes of the problem.

CHECKING PULSATORS

The vacuum gauge can also be used to tell whether the pulsators are doing their important job of periodically collapsing the teat cup inflations. The efficiency of the pulsators' action can be checked as follows:

1. While a cow is being milked by the milking machine, disconnect the air hoses, one at a time, from the metal teat cup shells. Attach an air hose to the vacuum gauge.
2. Watch the vacuum gauge indicator needle. It should move from zero to the level of vacuum regis-

tered on the vacuum line as the pulsator opens and closes. The needle should move freely to both extremes with no hesitation or stopping.

3. Check all air hoses on all pulsators.

CHECKING THE VACUUM LINE

Long vacuum lines, especially in stanchion barns, can easily become partially blocked by moisture and dirt. As a result, milking efficiency may be impaired in some section or sections of the barn. This can be checked as follows:

1. Attach the vacuum gauge to a free stall cock close to the area where the milking machines are operating.
2. Watch the gauge while two or three cows are milked in that section of the barn.
3. Repeat the operation in another part of the barn.

The level of vacuum indicated on the gauge should be the level recommended by the manufacturer and should not fluctuate. A potential problem is indicated if there is a drop of more than 2 inches of vacuum, a delay of over 2 seconds to return to the original level, or both.

Problems? Call Your Serviceman

If your milking machine does not check out in one or more of the tests, get your milker company representative to make a more thorough analysis of the problem. He can probably make recommendations to put your equipment in condition to do an efficient job of milking.

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